

# Alba Cervera-Lierta | Full CV

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## Education

<b>Doctor of Philosophy (PhD) in Physics</b> <i>Supervisor: Dr. José Ignacio Latorre</i> Title: Maximal Entanglement: Applications to Quantum Computation and Particle Physics.	<b>Universitat de Barcelona</b> 2015 – 2019
<b>Master in Astrophysics, Particle Physics and Cosmology</b> <i>Specialized in Particle Physics and Gravitation.</i> Thesis title: Non-unitary neutrino oscillations.	<b>Universitat de Barcelona</b> 2014 – 2015
<b>Bachelor in Physics</b> <i>Specialized in Fundamental Physics</i> Thesis title: Scaling of entanglement support for iTEBD algorithm.	<b>Universitat de Barcelona</b> 2009 – 2014

## Positions

<b>Research</b> .....	
<b>Senior Researcher</b> <i>Quantic group (CASE department), Ramón y Cajal fellow since 2024.</i>	<b>Barcelona Supercomputing Center</b> 2021 – Present
<b>Postdoctoral Fellow</b> <i>Alán Aspuru-Guzik group</i>	<b>University of Toronto</b> 2019 – 2021
<b>Technical Researcher</b> <i>Quantic group (CASE department)</i>	<b>Barcelona Supercomputing Center</b> 2017 – 2019
<b>Specialized Technician</b> <i>Project: "Entanglement, tensor networks and cold gases"</i>	<b>Universitat de Barcelona</b> 2014
<b>Coordinator</b> .....	
<b>EuroQCS-Spain project</b> <i>Quantum computing technology responsible (budget: 12,5 M €)</i>	<b>Barcelona Supercomputing Center</b> 2022 – Present
<b>Quantum Spain project</b> <i>Project Principal Investigator (budget: 22M €)</i>	<b>Barcelona Supercomputing Center</b> 2021 – Present
<b>Visitor</b> .....	
<b>Center of Quantum Technologies</b> <i>Prof. Kwek Leong Chuan group.</i>	<b>National University of Singapore</b> May 2017
<b>Instituto de Física Teórica</b> <i>Dr. César Gómez's group.</i>	<b>CSIC</b> Feb 2017
<b>Grupo de investigación en Información y Computación Cuántica</b> <i>Dr. Vicente Martín group</i>	<b>Universidad Politécnica de Madrid</b> Sep 2016
<b>Rudolph Pierls Institute for Theoretical Physics</b> <i>Dr. Juan Rojo's group.</i>	<b>University of Oxford</b> Jan - May 2016

## Funded projects

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### European

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**EuroQHPC-Integration project** **EuroHPC - Joint Undertaking**  
*Budget: 745.200 €(WP), Role: EuroQCS-Spain consortia coordinator.* 2025 – 2029

### National

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**Logic Artificial Intelligence for Photonics (LOGITONICS)** **Agencia Estatal de Investigación (AEI)**  
*Budget: 75k €, Role: principal investigator.* 2024 – 2028

**Ramón y Cajal fellowship** **Agencia Estatal de Investigación (AEI)**  
*Budget: 50k €, Tenure track position.* 2024 – 2029

**Quantum Spain project** **Secretary of State of Digitalization and AI (SEDIA)**  
*Budget: 22M €, Role: principal investigator* 2021 – 2025  
<https://quantumspain-project.es>

### Industry

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**Quantum Experience for Academic Research Program** **IBM**  
*Funding: Exclusive access to pulse-level control of IBM quantum devices, Role: co-PI.* 2021 – 2022  
Project: High-dimensional quantum experiments superconducting circuits.

## Awards and Honors

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**DTIC - Ingenierías UPF research award for women researchers** **Universitat Pompeu Fabra**  
May 2024

**PhD Excellent Cum Laude** **Universitat de Barcelona**  
Jun 2019

**Teach Me QISKit Award** **IBM**  
Jun 2018

## Publications

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Link to [Google Scholar](#) and [OrCID](#).

**18. Quantum Circuits for High-Dimensional Absolutely Maximally Entangled States** **Preprint**  
*B. Casas, G. Rajchel-Mieldzioć, S. Ahmad Rather, M. Płodzień, W. Bruzda,* 2025  
*A. Cervera-Lierta, K. Życzkowski, arXiv:2504.05394 [quant-ph].*

**17. Multidimensional Fourier series with quantum circuits** **Phys. Rev. A**  
*B. Casas, A. Cervera-Lierta* 2023  
Physical Review A 107, 062612 (2023).

**16. Design of quantum optical experiments with Logic Artificial Intelligence** **Quantum**  
*A. Cervera-Lierta, M. Krenn, A. Aspuru-Guzik* 2022  
Quantum 6, 836 (2022).

**15. On scientific understanding with artificial intelligence** **Nat. Rev. Phys.**  
*M. Krenn, R. Pollice, S. Y. Guo, et. al.* 2022  
Nature Review Physics (2022).

**14. Toward Reliability in the NISQ Era: Robust Interval Guarantee for Quantum Measurements on Approximate States** **Phys. Rev. Research**  
2022  
*M. Weber, A. Anand, A. Cervera-Lierta, J. S. Kottmann, T. H. Kyaw, et. al.*  
Physical Review Research 4, 033217 (2022).

**13. Programming Physical Quantum Systems with Pulse-Level Control** **Front. Phys.**  
2022  
*K. N. Smith, G. S. Ravi, T. Alexander, et. al.*  
Frontiers in Physics, 672 (2022).

12. **Learning Interpretable Representations of Entanglement in Quantum Optics Experiments using Deep Generative Models** Nat. Mach. Intell.  
2021  
*D. Flam-Shepherd, T. Wu, X. Gu, A. Cervera-Liarta, M. Krenn, A. Aspuru-Guzik*  
Nature Machine Intelligence **4** (6), 544-554 (2022).
  11. **Experimental high-dimensional Greenberger–Horne–Zeilinger entanglement with superconducting transmon qutrits** Phys. Rev. Appl.  
2022  
*A. Cervera-Liarta, M. Krenn, A. Aspuru-Guzik, A. Galda*  
Physical Review Applied **17**, 024062 (2022).
  10. **Noisy intermediate-scale quantum algorithms** Rev. Mod. Phys.  
2022  
*K. Bharti, A. Cervera-Liarta, T. H. Kyaw, T. Haug, et. al.*  
Review of Modern Physics **94**, 015004 (2022).
  9. **The Meta-Variational Quantum Eigensolver (Meta-VQE): Learning energy profiles of parameterized Hamiltonians for quantum simulation** PRX Quantum  
2021  
*A. Cervera-Liarta, J. S. Kottmann and A. Aspuru-Guzik*  
PRX Quantum **2**, 020329 (2021).
  8. **Tequila: A platform for rapid development of quantum algorithms** Quantum Sci. Technol.  
2021  
*J. S. Kottmann, S. Alperin-Lea, T. Tamayo-Mendoza, A. Cervera-Liarta et. al.*  
Quantum Science and Technology **6** 024009 (2021).
  7. **Data Re-uploading for a Universal Quantum Classifier** Quantum  
2020  
*A. Pérez-Salinas, A. Cervera-Liarta, E. Gil-Fuster, J. I. Latorre*  
Quantum **4**, 226 (2020).
  6. **Maximal Entanglement: Applications in Quantum Information and Particle Physics** PhD Thesis  
2019  
*A. Cervera-Liarta*  
arXiv:1906.12099 [quant-ph].
  5. **Quantum Circuits for Maximally Entangled States** Phys. Rev. A  
2019  
*A. Cervera-Liarta, J. I. Latorre, D. Goyeneche*  
Physical Review A **100**, 022342 (2019).
  4. **Exact Ising Simulation on a Quantum Computer** Quantum  
2018  
*A. Cervera-Liarta*  
Quantum **2**, 114 (2018).
  3. **Multipartite Entanglement in Spin Chains and the Hyperdeterminant** J. Phys. A Math. Theor.  
2018  
*A. Cervera-Liarta, A. Gasull, J. I. Latorre and G. Sierra.*  
Journal of Physics A: Mathematical and Theoretical **51**, 505301 (2018).
  2. **Maximal Entanglement in High Energy Physics** SciPost Phys.  
2017  
*A. Cervera-Liarta, J. I. Latorre, J. Rojo and L. Rottoli*  
SciPost Physics **3**, 036 (2017).
  1. **Operational Approach to Bell Inequalities: Application to qutrits** Phys. Rev. A  
2016  
*D. Alsina, A. Cervera, D. Goyeneche, J. I. Latorre and K. Zyczkowski*  
Physical Review A **94**, 032102 (2016).
- Reports and white papers**.....
- When matter and information merge into “Quantum”** Commun. Phys.  
2023  
*R. Aguado, A. Cervera-Liarta, A. Correia, et. al., Communications Physics* **6**(1) 266 (2023).
  - Workflows Community Summit 2022: A Roadmap Revolution** Technical Report  
2023  
*R. Ferreira da Silva, R. M. Badia, V. Bala, et. al.*  
ORNL/TM-2023/2885, arXiv:2304.00019 [cs.DC].
- Books, chapters and notes**.....
- Machine learning in quantum sciences** Cambridge University Press  
2025  
*A. Dawid, J. Arnold, B. Requena, et. al.*  
Cambridge University Press 2025, arXiv:2204.04198 [quant-ph].
  - Simulation of the 1d XY model on a quantum computer** Preprint  
2024  
*M. Farreras, A. Cervera-Liarta*

## Software development

### Libraries:

#### Quantum computing open-source library "Tequila"

Project collaborator, <https://github.com/tequila-hub/>

Codes and demos:

Python

2021

#### Logic AI algorithm "Klaus"

Creator and developer, <https://github.com/AlbaCL/Klaus>

Mathematica

2022

#### Meta Variational Quantum Eigensolver

Co-creator and developer., <https://github.com/aspuru-guzik-group/Meta-VQE>

Python

2021

## Talks and seminars

Some of my talks' videos are listed in my [Youtube Channel](#) playlists.

Virtual talks due to COVID-19 pandemic.

### Keynote

#### Lliçó Innaugural

"Tecnologies quàntiques: passat, present i futur d'una (r)evolució tecnològica"

Enginyeries Universitat Pompeu Fabra.

UPF

Sep 30 2024

#### 100tífiques

"Tecnologies quàntiques: passat, present i futur d'una (r)evolució tecnològica"

Fundació Catalana per a la Recerca i la Innovació.

UPC

Feb 1 2024

#### The quest for the quantum computer

Barcelona, Spain

10<sup>th</sup> BSC Doctoral Symposium

May 9, 2023

#### The Noisy Intermediate-Scale Quantum era

Porto Alegre, Brasil

CARLA 2022

Sep 28-30, 2022

#### Margarita Salas Honoris Causa PhD act

"De las computadoras a los ordenadores"

Universidad de Extremadura

Feb 2 2019

### Colloquium

#### Computación cuántica: pasado, presente y futuro

##### de una revolución tecnológica

Opening academic year Aula de Ciencia y Tecnología, Universidad de Alicante, Spain.

Universidad de Alicante

Sep 28, 2023

#### Tecnologies quàntiques: present i futur

Universitat de Barcelona, Spain.

ICCUB Colloquia

Feb 16, 2022

### Invited

#### Quantum computers: the new supercomputer partition

HiPEAC 2025, Classical HPC & QC: the way to foster the integration workshop

Barcelona, Spain.

Jan 20, 2025

#### Quantum computers: the new supercomputer partition

SC24

Atlanta, USA

Nov 20, 2024

#### Design of quantum optical experiments with logic artificial intelligence

SCOP24

ICFO, Barcelona

Oct 3, 2024

#### Building the Spanish Quantum Computer

Quantum Technologies in Europe, Madrid, Spain

Quantera

Nov 23, 2023

#### Quantum-HPC integration: challenges and opportunities

EQTC 2023

Hannover, Germany

Oct 19, 2023

#### Variational Quantum Algorithms

QTYR 2023

CSIC, Madrid

Jul 04, 2023

<b>Quantum Spain in the NISQ era</b> <i>QBN Meeting on Quantum Computing and Applications</i>	<b>BSC-CNS</b> <i>Jun 15, 2023</i>
<b>High-dimensional quantum computation: opportunities and challenges</b> <i>Symposium on Open-Source Tools for Quantum Computing &amp; Simulation</i>	<b>ICFO</b> <i>Mar 31, 2023</i>
<b>High-dimensional quantum computation</b> <i>CERN</i>	<b>QT4HPC</b> <i>Nov 2, 2022</i>
<b>Quantum algorithms in near term devices</b> <i>IQTC, University of Barcelona (Spain).</i>	<b>New Trends in Computational Chemistry</b> <i>Sep 9, 2022</i>
<b>Quantum Spain</b> <i>Barcelona (Spain).</i>	<b>Quantum 2022</b> <i>Jun 22, 2022</i>
<b>Quantum Spain: un impulso para el ecosistema de computación cuántica</b> <i>NASERTIC, Pamplona (Spain).</i>	<b>Jornada cuántica</b> <i>May 4, 2022</i>
<b>Quantum Spain: un impulso para el ecosistema de computación cuántica</b> <i>SCAYLE, León (Spain).</i>	<b>Jornada Eco. Cuántico</b> <i>Mar 1, 2022</i>
<b>Near term quantum computation: opportunities and challenges</b> <i>Bilbao (Spain).</i>	<b>Quantum 2021</b> <i>Nov 24, 2021</i>
<b>Noisy Intermediate-Scale Quantum era</b> <i>Virtual (*)</i> .	<b>JURES 2021</b> <i>Sep 17, 2021</i>
<b>Noisy Intermediate-Scale Quantum algorithms</b> <i>Perspectives on Quantum Sensing and Computation for Particle Physics. Virtual (*)</i> .	<b>CERN</b> <i>Jul 15, 2021</i>
<b>The Meta-Variational Quantum Eigensolver</b> <i>Virtual (*)</i> .	<b>Machine Learning for Quantum X</b> <i>Jul 6, 2021</i>
<b>The Meta-Variational Quantum Eigensolver</b> <i>Virtual (*)</i> .	<b>QWorld Quantum Science Days</b> <i>Jun 1, 2021</i>
<b>Chronicles of Entangland, the foundation of the SC town</b> <i>Virtual (*)</i> .	<b>Qiskit Hackathon Europe</b> <i>May 26, 2021</i>
<b>Experimental high-dimensional GHZ entanglement with superconducting transmon qutrits</b> <i>Chicago. Virtual (*)</i> .	<b>Pulse-level Quantum Control Workshop</b> <i>May 18, 2021</i>
<b>Maximal Entanglement in High Energy Physics</b> <i>Topical Group on Hadronic Physics. Virtual (*)</i> .	<b>APS April Meeting</b> <i>Apr 15, 2021</i>
<b>Noisy Intermediate-Scale Quantum algorithms</b> <i>Virtual (*)</i> .	<b>Universidad Iberoamericana</b> <i>Apr 13, 2021</i>
<b>Please, feed the quantum troll!</b> <i>Virtual (*)</i> .	<b>Q-Hack 2021</b> <i>Feb 19, 2021</i>
<b>Testing and designing quantum algorithms for the NISQ era</b> <i>Quantum Computing and Simulation on Near-Term Devices. Virtual (*)</i> .	<b>INT-20-3</b> <i>Nov 21, 2020</i>
<b>Maximal Entanglement in High Energy Physics, Quantum Entanglement at Collider Energies</b> <i>Stony Brook (United States).</i>	<b>CFNS Stony Brook</b> <i>Sep 11, 2018</i>
<b>Exact simulation of a Quantum Phase Transition on a quantum computer</b> <i>Barcelona (Spain).</i>	<b>Quantum Phase Transitions</b> <i>Apr 05, 2018</i>
<b>Emergence of Gauge Symmetry from a Maximal Entanglement Principle</b> <i>Madrid (Spain).</i>	<b>Universidad Complutense de Madrid</b> <i>Sep 21, 2016</i>

## Contributed

<b>The Meta-Variational Quantum Eigensolver</b> <i>Virtual (*)</i> .	<b>APS March Meeting 2021</b> <i>Mar 18, 2021</i>
<b>Data re-uploading for a universal quantum classifier</b> <i>Virtual (*)</i> .	<b>Q-Turn 2020</b> <i>Nov 24, 2020</i>
<b>Data re-uploading for a universal quantum classifier</b> <i>Quantum Techniques Machine Learning. Virtual (*)</i> .	<b>QTML 2020</b> <i>Nov 12, 2020</i>
<b>Maximal Entanglement in Quantum Computation</b> <i>Barcelona (Spain)</i> .	<b>BSC Severo Ochoa Doctoral Symposium</b> <i>May 07, 2019</i>

## Seminars

<b>Computació quàntica: reptes i oportunitats</b> <i>FIB</i>	<b>UPC</b> <i>Mar 11, 2025</i>
<b>The Noisy Intermediate-Scale Quantum Computation</b> <i>IQCC</i>	<b>Universitat de Girona</b> <i>Jan 21, 2025</i>
<b>Computación cuántica: pasado, presente y futuro de una revolución tecnológica</b> <i>Madrid, Spain</i>	<b>Telefónica</b> <i>Feb 21, 2024</i>
<b>Quantum-HPC integration: challenges and opportunities</b> <i>Toronto, Canada</i>	<b>LG Toronto</b> <i>Oct 26, 2023</i>
<b>Quantum Spain: creating a public quantum-HPC infrastructure</b> <i>European Comission (Virtual)</i> .	<b>Quantum Cafe</b> <i>Sep 21, 2023</i>
<b>A roadmap to quantum computing integration into HPC infrastructures</b>	<b>RISC2 Seminar Series</b> <i>Mar 15, 2023</i>
<b>Noisy Intermediate Scale Quantum Computation</b> <i>Dept. Condensed Matter Physics.</i>	<b>Universidad de Zaragoza</b> <i>Jun 3, 2022</i>
<b>Noisy Intermediate Scale Quantum Computation</b> <i>Virtual.</i>	<b>Universidad Nacional de Colombia</b> <i>Apr 21, 2022</i>
<b>Design of quantum optical experiments with logic artificial intelligence</b> <i>Quantum Optics group seminar.</i>	<b>MPQ</b> <i>Oct 29, 2021</i>
<b>High-dimensional quantum computing experiments</b> <i>Prof. Manas Mukherjee group meeting (Singapore, Virtual *)</i>	<b>CQT</b> <i>Aug 03, 2021</i>
<b>Maximal Entanglement in a Quantum Computer</b> <i>Fermilab theory seminars. Virtual (*)</i>	<b>Fermilab</b> <i>Jun 15, 2021</i>
<b>The Meta-Variational Quantum Eigensolver</b> <i>Oxford Quantum Information Society. Virtual (*)</i>	<b>Oxford</b> <i>May 20, 2021</i>
<b>The Meta-Variational Quantum Eigensolver</b> <i>Virtual.</i>	<b>Scientific Machine Learning Webinars</b> <i>May 6, 2021</i>
<b>Noisy Intermediate-Scale Quantum algorithms</b> <i>Hypatia Series. Virtual(*)</i> .	<b>Alexandria University</b> <i>Apr 8, 2021</i>
<b>Maximal Entanglement in High Energy Physics</b> <i>Nuclear Theory series. Virtual(*)</i> .	<b>University of Maryland</b> <i>Apr 2, 2021</i>
<b>Noisy Intermediate-Scale Quantum algorithms</b> <i>Belgian Quantum Physics Initiative. Virtual(*)</i> .	<b>Académie Royale de Belgique</b> <i>Mar 4, 2021</i>
<b>Designing VQA with Tequila</b> <i>Virtual.</i>	<b>Quantum Conversations by the Bay</b> <i>Nov 28, 2020</i>
<b>Maximal Entanglement. Applications to Quantum Computation and Particle Physics</b> <i>Matterlab group meeting. Toronto (Canada)</i> .	<b>UofT</b> <i>Mar 1, 2020</i>

## Panels and round tables

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### As a moderator

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#### Round table Industrial forum

*Participants: Marta Estarellas, Richard Kienhoefer, Pascale Senellart, Fernando de la Iglesia and Bilal Kalyoncu*

**Quantum Matter 2023**

*May 24, 2023*

#### Round table Industrial forum

*Participants: Marc Almendros, Niels Bultink, Gianni del Bimbo, Daniel Szombati, Yonatan Cohen, Josep M. Martorell, Heike Riel and Carmen Palacios.*

**Quantum Matter 2022**

*Jun 22, 2022*

### As a participant

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#### Quantum computing + Communications: meet at the halfway.

*Pannel with Hugues de Riedmatten.*

Moderated by Carmen G. Almudéver.

**PuzzleX**

*Oct 7, 2022*

#### Catalan Nanotech Ecosystem Session

*Moderated by Stephan Roche.*

**ACM Nanocomm**

*Oct 7, 2022*

#### Women in ACM/IEEE WICE Luncheon

*Moderated by Núria Castell.*

**ACM Nanocomm**

*Oct 6, 2022*

#### Quantum Computing: Changing the Course of Industry

*Round table with Carlos Kuchkovsky, Marta Pita, and Enrique Sanchez.*

Moderated by Jaime Gómez.

**Barcelona New Economy Week**

*Oct 3, 2022*

#### Quantum Technologies

*Panel with Silvia Carrasco, Carlos Abellán and Enrique Mora.*

Moderated by Rubén Criado

**Barcelona Deep Tech Summit**

*Sep 22, 2022*

#### The Impact of Advanced Computing in AI

*Round table with Jean Pierre Panziera and Nicolas Moes.*

Moderated by David Pringle

**Science|Business**

*Sep 19 2022*

#### The Future of HPC

*Panel with Paul Messina, Per Stenström, Uri Weiser and Min Li.*

Moderated by Josephine Wood

**ACM Europe Summer School**

*Sep 2 2022*

#### Young People Program Career Panel

**DATE 2022**

*Mar 21 2022*

#### Quantum Software Ecosystem

*Pannel discussion with industry and academic members*

**IEEE Services**

*Sep 9 2021*

## Committees

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### National

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#### Vice-president

*Grupo Especializado en Información y Tecnologías Cuánticas (GEITC).*

**Real Sociedad Española de Física**

*2023 - Present*

### European

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#### Quantum Computing working group

*Quantum Coordination Board*

**European Quantum Flagship and EuroHPC**

*2023 - Present*

#### Quantum Standarization working group

*Quantum Coordination Board*

**European Quantum Flagship and EuroHPC**

*2023 - Present*

#### Quantum - HPC Working group

**European Quantum Flagship**

*2022 - Present*

### Scientific Advisory Board

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#### Finish Quantum Initiative

**CSC, Aalto University, VTT**

*2023 - Present*



## Scientific Committee

Quantum Techniques in Machine Learning 2023, CERN.  
ICE8 2023, Santiago de Compostela.  
Quantum Matter 2023, Madrid.  
Quantum Matter 2022, Barcelona.  
Quantum Techniques in Machine Learning 2020, Virtual.

## PhD Thesis committees

<b>Memory Management in Software Quantum Computing Simulators</b> <i>Gilberto Díaz</i> Supervisors: C. Jaime Barrios Hernández, L. Angelo Steffenel, J. F. Couturier	<b>U. Industrial de Santander</b> <i>Dec 9, 2024</i>
<b>Quantum many-body ground states via digital quantum simulation</b> <i>Bruno Rodrigues Pacheco e Murta</i> Supervisors: Joaquín Fernández-Rossier, Nuno Miguel Machado Reis Peres	<b>Universidade do Minho</b> <i>Feb 29, 2024</i>
<b>Reservoir Computing in Quantum Systems</b> <i>Rodrigo Martínez Peña</i> Supervisor: Roberta Zambrini, Miguel Cornelles Soriano	<b>Universitat de les Illes Balears</b> <i>Sep 7, 2023</i>
<b>Fault tolerant quantum algorithms</b> <i>Pablo Moreno-Casares</i> Supervisor: Miguel Ángel Martín-Delgado	<b>Universidad Complutense de Madrid</b> <i>Jan 17, 2023</i>
<b>Quantum information in lattices</b> <i>Bruna Gabrielly De Moraes Araújo</i> Supervisors: Antonio Acín dal Maschio, Daniel Cavalcanti Santos and Stephan Jean Louis Roche	<b>Universitat Autònoma de Barcelona</b> <i>Jul 22, 2022</i>

## Conference and seminars organization

<b>Spring School on Near-Term Quantum Computing</b> <i>Co-organizer. Centro de Ciencias de Benasque Pedro Pascual.</i>	<b>Benasque, Spain.</b> <i>Apr 14-27, 2024</i>
<b>Quantum Matter International Conference</b> <i>Industrial forum co-organizer.</i>	<b>Madrid</b> <i>May 22-25, 2023</i>
<b>Quantum Research Seminars Toronto.</b> <i>Co-organizer and chair. Youtube: Quantum Research Seminars Toronto.</i>	<b>Virtual</b> <i>2020 – 2021</i>

## Teaching

### Lectures and courses

<b>A gentle introduction to quantum computing</b> <i>ACM Europe Summer School on HPC</i> The quest for the quantum computer	<b>ACM Europe, Barcelona</b> <i>July 7, 2023</i>
<b>A gentle introduction to quantum computing</b> <i>ACM Europe Summer School on HPC</i>	<b>ACM Europe, Barcelona</b> <i>July 7, 2023</i>
<b>Quantum Algorithms I and II</b> <i>Spring School on Superconducting Qubit Technology</i>	<b>Centro de Ciencias de Benasque Pedro Pascual</b> <i>Apr 11-21, 2023</i>
<b>The Noisy Intermediate Scale Quantum Computation</b> <i>Escenarios Científicos</i>	<b>Universidad Complutense de Madrid</b> <i>Mar 14, 2023</i>
<b>The Noisy Intermediate Scale Quantum Computation</b> <i>Master Modelling for Science and Engineering Research and Innovation</i>	<b>Universitat Autònoma de Barcelona</b> <i>Oct 4, 2022</i>
<b>Variational Quantum Computing</b> <i>IV Summer School on Quantum Computing</i>	<b>Universidad Internacional Menéndez-Pelayo</b> <i>Sep 5-9, 2022</i>



<b>Near-term quantum computing</b> <i>Clase introducción al curso en Quantum Computing software.</i>	<b>Universidad Castilla La-Mancha</b> <i>Jun 20, 2022</i>
<b>NISQ computing</b> <i>Theory lectures</i>	<b>Institut de Ciències Fotòniques (ICFO)</b> <i>Mar 15-24, 2022</i>
<b>Variational Quantum Computing</b> <i>III Summer School on Quantum and Q-Inspired Computing</i>	<b>Universidad Internacional Menéndez-Pelayo</b> <i>Sep 7, 2021</i>
<b>Noisy Intermediate-Scale Quantum Algorithms</b> <i>Summer School "Machine Learning in Quantum Physics and Chemistry"</i>	<b>Warsaw, Poland</b> <i>Aug 25, 2021</i>
<b>Quantum Computing in the NISQ era</b> <i>Talk in Quantum Technologies Winter School</i>	<b>UCL</b> <i>Dec 10, 2020</i>
<b>Bojos per la Supercomputació</b> <i>Introductory course in quantum computation for high-school students</i>	<b>BSC</b> <i>26 Apr – 04 May, 2019</i>
<b>The Quantum Revolution</b> <i>Seminar at Master in Finance</i>	<b>ESADE Business School</b> <i>Jun 07, 2018</i>

## Teaching positions

<b>Teacher Assistant</b> <i>Calculus I-II, Theoretical Mechanics, Physics I - II.</i>	<b>Universitat Autònoma de Barcelona</b> <i>2017 – 2019</i>
<b>Teacher Assistant</b> <i>Modern Physics Laboratory, Computational Physics.</i>	<b>Universitat de Barcelona</b> <i>2016 – 2017</i>

## Students

### PhD

<b>Francesco Aldo Venturelli</b> <i>Co-supervised with Miguel Ángel González Ballester</i>	<b>Universitat Pompeu Fabra</b> <i>Nov 2024 – Present</i>
<b>Berta Casas Font</b> <i>Co-supervised with Artur Garcia</i>	<b>University of Barcelona</b> <i>Sep 2022 – Present</i>

### Master

<b>Juan Francisco Martín Bravo</b> <i>Quantum benchmarking: entanglement measures in a quantum computer</i> Master Quantum Science and Technology.	<b>University of Barcelona</b> <i>Feb 2023 – Jul 2023</i>
<b>Berta Casas Font</b> <i>Quantum function fitting and classification beyond the single-qubit model</i> Master Quantum Science and Technology.	<b>University of Barcelona</b> <i>Feb 2022 – Jul 2022</i>

### Internships

<b>Francesc Sabater Garcia</b> <i>Adding Qibo as a Supported Framework for Mitiq</i> Master Quantum Science and Technology.	<b>University of Barcelona</b> <i>Sep 2023 – Feb 2024</i>
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### Undergraduate (degree)

<b>Marc Farreras</b> <i>Exact XY model simulation with a quantum computer</i> Physics Degree	<b>University of Barcelona</b> <i>Feb 2023 – Jul 2023</i>
<b>Alex Alemany</b> <i>The HHL algorithm</i> Computer Science Degree. Co-supervised with Jordi Delgado.	<b>Universitat Politècnica de Catalunya</b> <i>Feb 2023 – Jul 2023</i>
<b>Júlia Barberà Rodríguez</b> <i>Application of Grover's quantum algorithm for string matching</i> Physics Degree	<b>University of Barcelona</b> <i>Feb 2022 – Jul 2022</i>

## Outreach

Some of my talks and events videos are listed in my [Youtube Channel](#) playlists.

### Articles

#### **Supercomputación y computación cuántica: el camino hacia la integración**

*Revista Española de Física 38 (2), 37-41*

**Revista Española de Física**  
Mar 2024

#### **L'ordinador quàntic: un camí de ciència, tecnologia i sobirania**

*Revista IDEES núm. 61 "Quantum: una revolució que canviarà el món?".*  
Translated to Spanish, English and Catalan.

**Revista IDEES**  
Feb 2024

#### **Computación Cuántica en la Nube**

*Revista Española de Física 34 (1), 25-29.*

**Revista Española de Física**  
Mar 2020

#### **How I became a quantum computation scientist**

*Medium article for @qiskit*

Jul 2018

#### **Contributing Writer**

*Medium articles, @quantum\_wa.*

**Quantum World Association**  
2018 – 2019

### Commissary

#### **City and Science Biennial**

*With Toni Pou and Teresa Badia.*

**Ajuntament de Barcelona**  
2025

### Panels and round tables

#### **Talent Arena MWC**

*Conversation with Antonio Acín*

**Barcelona**  
Mar 5, 2025

#### **Jornades REACT**

*Round table with Teresa Riesgo Alcaide, Laia Bonet, Xavier Azemar Mallard Mateo Valero Cortes.* Mar 29, 2023  
Moderated by Elena Arrieta Palacio.

**Barcelona**

#### **Premios Nacionales de Investigación**

*Presenter and moderator of the act.*

Chaired by HRH King and Queen of Spain, Spanish Minister of Science and Universities and Barcelona Mayor.

**Barcelona**  
May 5, 2022

#### **Mujeres y Digitalización: Por una España Igualitaria**

*Round table with Marta Villegas, Lucía Flecha and Susana Fernández.*  
Moderated by the Secretary of State of Digitalization and AI Carme Artigas.

**MINECO**  
Mar 8, 2022

#### **Dia Internacional Dona i Nena a la ciència**

*Event with Barcelona city Mayor and government.*

**Ajuntament de Barcelona**  
Feb 11, 2022

#### **Women in Physics path**

*Organized by the Equality commission from the Physics Faculty*

**Universitat de Barcelona**  
Mar 3 2021

### Keynote speech

#### **Bojos de la Ciència**

*Speech about Bojos per la Supercomputació program*

**Fundació Catalunya-La Pedrera**  
Dec 10 2018

#### **Bojos de la Ciència**

*Speech at Master grants act*

**Fundació Catalunya-La Pedrera**  
Oct 16 2018

### Talks and courses

#### **Computació quàntica: passat, present i futur d'una (r)evolució tecnològica**

*Mobile World Congress*

**Beat Barcelona**  
Mar 6, 2025

#### **Quantum computers: the new supercomputer partition**

*Mobile World Congress*

**BSC Booth.**  
Mar 6, 2025

<b>Computación cuántica: pasado, presente y futuro de una (r)evolución tecnológica</b> Casa del Cordón	<b>Burgos, Spain.</b> Feb 27, 2025
<b>Computació quàntica: passat, present i futur d'una (r)evolució tecnològica</b> Cicle Últimes fronteres: la ciència del segle XXI	<b>Universitat de Girona</b> May 4, 2023
<b>Computación cuántica: presente y futuro de una revolución tecn.</b> Jornada tecnología.	<b>Uni. Las Palmas de Gran Canaria</b> Apr 18, 2023
<b>Computació Quàntica i els reptes de Talent TIC en els propers anys</b> Col·legi d'Informàtica de Catalunya	<b>Lul·liana</b> Nov 24, 2022
<b>Tecnologies quàntiques: present i futur d'una (r)evolució tecnològica</b> Casal de Joves Sant Just Desvern	<b>Jornades Feministes</b> Nov 20, 2022
<b>Present i futur de les tecnologies quàntiques</b> Two-day introductory course for senior citizens.	<b>A-12 Estudis i Recerca Universitaria</b> Oct 20-26, 2022
<b>Computació quàntica: present i futur d'una revolució tecnològica</b> Universitat Politècnica de Catalunya.	<b>Open Day TIC</b> May 12, 2022
<b>Tecnologías Cuánticas: presente y futuro</b> Barcelona.	<b>Pint of Science</b> May 11, 2022
<b>Quantum Spain: un impulso para el ecosistema de computación cuántica</b> Seminar for the Corporación Tecnológica de Andalucía. Virtual.	<b>CTA</b> Apr 26, 2022
<b>Supercomputación y Quantum Spain</b> Seminar for the Plataforma Tecnológica Española y de Tecnologías Disruptivas. Virtual.	<b>PTE Disruptive</b> Mar 22, 2022
<b>Tecnologías cuánticas: presente y futuro</b> Virtual.	<b>Col·legi de Biòlegs de Catalunya</b> Mar 16, 2022
<b>Computación Cuántica</b> Cosmocaixa (Barcelona)	<b>Live Talks Cosmocaixa</b> Feb 16, 2022
<b>Quantum Spain</b> Quantum Barcelona and Madrid meet-up.	<b>Meet-up</b> Dec 13, 2021/Feb 9, 2022
<b>Quantum Calling</b> Waterloo Quantum Meet-up	<b>K-W Quantum Enthusiasts Meetup</b> Jun 18, 2020
<b>Quantica</b> Quantum computing talk and participation in the exhibition (video)	<b>CCCB</b> Apr 10-Sep 26, 2019
<b>De las computadoras a los ordenadores</b> Badajoz, Spain	<b>Margarita Salas Honoris Causa PhD event</b> Feb 26, 2019
<b>Technology to manipulate Nature</b> Madrid, Spain	<b>El País con tu Futuro</b> Dec 18, 2018
<b>Quantum Computation: a new paradigm</b> Sant Feliu de Llobregat, Barcelona, Spain	<b>TEDx talk</b> Sep 15, 2018
<b>Quantum Computation</b> Researcher's Night 2018	<b>Cosmocaixa (Science Museum)</b> Sep 28, 2018
<b>Mentorship programs.....</b>	
<b>Quantum Open Source Foundation mentorship program</b> Mentor	<b>QOSF</b> Sep 2020 – Jan 2021
<b>Girls E-Mentorship program</b> Mentor	<b>GEM</b> Sep 2020 – June 2021