

Alba Cervera-Lierta | Full CV

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Education

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

Positions

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

Funded projects

European

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

National

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

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

DonaTIC Revelació **Generalitat de Catalunya**
October 2025

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

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

23. Warm Starts, Cold States: Exploiting Adiabaticity for Variational Ground-States **Preprint**
R. Puig, B. Casas, A. Cervera-Liarta, Z. Holmes, A. Pérez-Salinas 2026
arXiv:2602.06137 [quant-ph].

22. Hardware-inspired Continuous Variables Quantum Optical Neural Networks **Preprint**
T. Krasimirov-Ivanov, A. Cervera-Liarta, P. Stornati, F. Centrone 2025
arXiv:2512.05204 [quant-ph].

21. Gauge invariance from quantum information principles **Preprint**
C. Núñez, M. Pardina, M. Asorey, J. I. Latorre, A. Cervera-Liarta 2025
arXiv:2511.04358 [hep-th].

20. Orchestrating Quantum-HPC Workflows with Distributed Quantum Circuit Cutting **SC Workshops'25**
2025
M. Tejedor, B. Casas, F. Conejero, A. Cervera-Liarta, R. Badia

Proceedings of the SC'25 Workshops of the International Conference for High Performance Computing, Networking, Storage and Analysis, 1898 - 1906.

19. Universality of entanglement in gluon dynamics **Acc. SciPost Physics**
C. Núñez, A. Cervera-Liarta, J. I. Latorre 2025
arXiv:2504.15353v1 [hep-th].

18. **Quantum Circuits for High-Dimensional Absolutely Maximally Entangled States** Acc. QST
2025
B. Casas, G. Rajchel-Mieldzioć, S. Ahmad Rather, M. Płodzień, W. Bruzda, A. Cervera-Liarta, K. Życzkowski, arXiv:2504.05394 [quant-ph].
17. **Multidimensional Fourier series with quantum circuits** Phys. Rev. A
2023
B. Casas, A. Cervera-Liarta
 Physical Review A **107**, 062612 (2023).
16. **Design of quantum optical experiments with Logic Artificial Intelligence** Quantum
2022
A. Cervera-Liarta, M. Krenn, A. Aspuru-Guzik
 Quantum **6**, 836 (2022).
15. **On scientific understanding with artificial intelligence** Nat. Rev. Phys.
2022
M. Krenn, R. Pollice, S. Y. Guo, et. al.
 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-Liarta, 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 <i>A. Cervera-Liarta, J. I. Latorre, J. Rojo and L. Rottoli</i> SciPost Physics 3 , 036 (2017).	SciPost Phys. 2017
1. Operational Approach to Bell Inequalities: Application to qutrits <i>D. Alsina, A. Cervera, D. Goyeneche, J. I. Latorre and K. Zyczkowski</i> Physical Review A 94 , 032102 (2016).	Phys. Rev. A 2016
Reports and white papers	
When matter and information merge into “Quantum” <i>R. Aguado, A. Cervera-Liarta, A. Correia, et. al., Communications Physics</i> 6 (1) 266 (2023).	Commun. Phys. 2023
Workflows Community Summit 2022: A Roadmap Revolution <i>R. Ferreira da Silva, R. M. Badia, V. Bala, et. al.</i> ORNL/TM-2023/2885, arXiv:2304.00019 [cs.DC].	Technical Report 2023
Books, chapters and notes	
Machine learning in quantum sciences <i>A. Dawid, J. Arnold, B. Requena, et. al.</i> Cambridge University Press 2025, arXiv:2204.04198 [quant-ph].	Cambridge University Press 2025
Simulation of the 1d XY model on a quantum computer <i>M. Farreras, A. Cervera-Liarta</i> SciPost Physics Lecture Notes 95 (2025).	SciPost Phys. Lect. Notes 2025
Software development	
<u>Libraries:</u>	
Distributed quantum circuit cutting library “Qdislib” <i>Project collaborator, https://qdislib.readthedocs.io/</i>	Python 2025
Quantum computing open-source library “Tequila” <i>Project collaborator, https://github.com/tequilahub/</i>	Python 2021
<u>Codes and demos:</u>	
Logic AI algorithm “Klaus” <i>Creator and developer, https://github.com/AlbaCL/Klaus</i>	Mathematica 2022
Meta Variational Quantum Eigensolver <i>Co-creator and developer., https://github.com/aspuru-guzik-group/Meta-VQE</i>	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 <i>“Tecnologies quàntiques: passat, present i futur d’una (r)evolució tecnològica”</i> Enginyeries Universitat Pompeu Fabra.	UPF Sep 30 2024
100tífiques <i>“Tecnologies quàntiques: passat, present i futur d’una (r)evolució tecnològica”</i> Fundació Catalana per a la Recerca i la Innovació.	UPC Feb 1 2024
The quest for the quantum computer <i>Barcelona, Spain</i>	10th BSC Doctoral Symposium May 9, 2023
The Noisy Intermediate-Scale Quantum era <i>Porto Alegre, Brasil</i>	CARLA 2022 Sep 28-30, 2022
Margarita Salas Honoris Causa PhD act <i>“De las computadoras a los ordenadores”</i>	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

A quantum computer decalogue

XL Trobades de la Mediterrània

Maó, Spain.

Oct 15, 2025

Quantum-HPC integration: challenges and opportunities

SQA 2025

Delft, The Netherlands.

Aug 26, 2025

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

Quanteria

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

Quantum Spain in the NISQ era

QBN Meeting on Quantum Computing and Applications

BSC-CNS

Jun 15, 2023

High-dimensional quantum computation: opportunities and challenges

Symposium on Open-Source Tools for Quantum Computing & Simulation

ICFO

Mar 31, 2023

High-dimensional quantum computation

CERN

QT4HPC

Nov 2, 2022

Quantum algorithms in near term devices

IQTC, University of Barcelona (Spain).

New Trends in Computational Chemistry

Sep 9, 2022

Quantum Spain

Barcelona (Spain).

Quantum 2022

Jun 22, 2022

Quantum Spain: un impulso para el ecosistema de computación cuántica

NASERTIC, Pamplona (Spain).

Jornada cuántica

May 4, 2022

Quantum Spain: un impulso para el ecosistema de computación cuántica

SCAYLE, León (Spain).

Jornada Eco. Cuántico

Mar 1, 2022

Near term quantum computation: opportunities and challenges

Bilbao (Spain).

Quantum 2021

Nov 24, 2021

Noisy Intermediate-Scale Quantum era

Virtual (*).

JURES 2021

Sep 17, 2021

Noisy Intermediate-Scale Quantum algorithms

Perspectives on Quantum Sensing and Computation for Particle Physics. Virtual (*).

CERN

Jul 15, 2021

The Meta-Variational Quantum Eigensolver

Virtual (*).

Machine Learning for Quantum X

Jul 6, 2021

The Meta-Variational Quantum Eigensolver

Virtual (*).

QWorld Quantum Science Days

Jun 1, 2021

Chronicles of Entangland, the foundation of the SC town <i>Virtual (*)</i> .	Qiskit Hackathon Europe <i>May 26, 2021</i>
Experimental high-dimensional GHZ entanglement with superconducting transmon qutrits <i>Chicago. Virtual (*)</i> .	Pulse-level Quantum Control Workshop <i>May 18, 2021</i>
Maximal Entanglement in High Energy Physics <i>Topical Group on Hadronic Physics. Virtual (*)</i> .	APS April Meeting <i>Apr 15, 2021</i>
Noisy Intermediate-Scale Quantum algorithms <i>Virtual (*)</i> .	Universidad Iberoamericana <i>Apr 13, 2021</i>
Please, feed the quantum troll! <i>Virtual (*)</i> .	Q-Hack 2021 <i>Feb 19, 2021</i>
Testing and designing quantum algorithms for the NISQ era <i>Quantum Computing and Simulation on Near-Term Devices. Virtual (*)</i> .	INT-20-3 <i>Nov 21, 2020</i>
Maximal Entanglement in High Energy Physics, Quantum Entanglement at Collider Energies <i>Stony Brook (United States)</i> .	CFNS Stony Brook <i>Sep 11, 2018</i>
Exact simulation of a Quantum Phase Transition on a quantum computer <i>Barcelona (Spain)</i> .	Quantum Phase Transitions <i>Apr 05, 2018</i>
Emergence of Gauge Symmetry from a Maximal Entanglement Principle <i>Madrid (Spain)</i> .	Universidad Complutense de Madrid <i>Sep 21, 2016</i>
Contributed	
The Meta-Variational Quantum Eigensolver <i>Virtual (*)</i> .	APS March Meeting 2021 <i>Mar 18, 2021</i>
Data re-uploading for a universal quantum classifier <i>Virtual (*)</i> .	Q-Turn 2020 <i>Nov 24, 2020</i>
Data re-uploading for a universal quantum classifier <i>Quantum Techniques Machine Learning. Virtual (*)</i> .	QTML 2020 <i>Nov 12, 2020</i>
Maximal Entanglement in Quantum Computation <i>Barcelona (Spain)</i> .	BSC Severo Ochoa Doctoral Symposium <i>May 07, 2019</i>
Seminars	
Ordenadores cuánticos: la nueva partición de los superordenadores <i>Ciclo de charlas por el Año Internacional de la Ciencia y Tecnología Cuántica</i> .	Universidad de Sevilla <i>May 14, 2025</i>
Computació quàntica: reptes i oportunitats <i>FIB</i>	UPC <i>Mar 11, 2025</i>
The Noisy Intermediate-Scale Quantum Computation <i>IQCC</i>	Universitat de Girona <i>Jan 21, 2025</i>
Computación cuántica: pasado, presente y futuro de una revolución tecnológica <i>Madrid, Spain</i>	Telefónica <i>Feb 21, 2024</i>
Quantum-HPC integration: challenges and opportunities <i>Toronto, Canada</i>	LG Toronto <i>Oct 26, 2023</i>
Quantum Spain: creating a public quantum-HPC infrastructure <i>European Comission (Virtual)</i> .	Quantum Cafe <i>Sep 21, 2023</i>
A roadmap to quantum computing integration into HPC infrastructures	RISC2 Seminar Series <i>Mar 15, 2023</i>
Noisy Intermediate Scale Quantum Computation <i>Dept. Condensed Matter Physics</i> .	Universidad de Zaragoza <i>Jun 3, 2022</i>

Noisy Intermediate Scale Quantum Computation <i>Virtual.</i>	Universidad Nacional de Colombia <i>Apr 21, 2022</i>
Design of quantum optical experiments with logic artificial intelligence <i>Quantum Optics group seminar.</i>	MPQ <i>Oct 29, 2021</i>
High-dimensional quantum computing experiments <i>Prof. Manas Mukherjee group meeting (Singapore, Virtual *)</i>	CQT <i>Aug 03, 2021</i>
Maximal Entanglement in a Quantum Computer <i>Fermilab theory seminars. Virtual (*)</i>	Fermilab <i>Jun 15, 2021</i>
The Meta-Variational Quantum Eigensolver <i>Oxford Quantum Information Society. Virtual (*)</i>	Oxford <i>May 20, 2021</i>
The Meta-Variational Quantum Eigensolver <i>Virtual.</i>	Scientific Machine Learning Webinars <i>May 6, 2021</i>
Noisy Intermediate-Scale Quantum algorithms <i>Hypatia Series. Virtual(*).</i>	Alexandria University <i>Apr 8, 2021</i>
Maximal Entanglement in High Energy Physics <i>Nuclear Theory series. Virtual(*).</i>	University of Maryland <i>Apr 2, 2021</i>
Noisy Intermediate-Scale Quantum algorithms <i>Belgian Quantum Physics Initiative. Virtual(*).</i>	Académie Royale de Belgique <i>Mar 4, 2021</i>
Designing VQA with Tequila <i>Virtual.</i>	Quantum Conversations by the Bay <i>Nov 28, 2020</i>
Maximal Entanglement. Applications to Quantum Computation and Particle Physics <i>Matterlab group meeting. Toronto (Canada).</i>	UofT <i>Mar 1, 2029</i>

Panels and round tables

As a moderator

Round table Industrial forum <i>Participants: Marta Estarellas, Richard Kienhoefer, Pascale Senellart, Fernando de la Iglesia and Bilal Kalyoncu</i>	Quantum Matter 2023 <i>May 24, 2023</i>
Round table Industrial forum <i>Participants: Marc Almendros, Niels Bultink, Gianni del Bimbo, Daniel Szombati, Yonatan Cohen, Josep M. Martorell, Heike Riel and Carmen Palacios.</i>	Quantum Matter 2022 <i>Jun 22, 2022</i>

As a participant

Quantum computing + Communications: meet at the halfway. <i>Pannel with Hugues de Riedmatten.</i> Moderated by Carmen G. Almudéver.	PuzzleX <i>Oct 7, 2022</i>
Catalan Nanotech Ecosystem Session <i>Moderated by Stephan Roche.</i>	ACM Nanocomm <i>Oct 7, 2022</i>
Women in ACM/IEEE WICE Luncheon <i>Moderated by Núria Castell.</i>	ACM Nanocomm <i>Oct 6, 2022</i>
Quantum Computing: Changing the Course of Industry <i>Round table with Carlos Kuchkovsky, Marta Pita, and Enrique Sanchez.</i> Moderated by Jaime Gómez.	Barcelona New Economy Week <i>Oct 3, 2022</i>
Quantum Technologies <i>Panel with Silvia Carrasco, Carlos Abellán and Enrique Mora.</i> Moderated by Rubén Criado	Barcelona Deep Tech Summit <i>Sep 22, 2022</i>
The Impact of Advanced Computing in AI <i>Round table with Jean Pierre Panziera and Nicolas Moes.</i> Moderated by David Pringle	Science Business <i>Sep 19 2022</i>

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 and referee

National.....

Vice-president

Grupo Especializado en Información y Tecnologías Cuánticas (GEITC).

Real Sociedad Española de Física

2023 - Present

European.....

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.....

Finish Quantum Initiative

CSC, Aalto University, VTT

2023 - Present

Consell de les Tecnologies Quàntiques de Catalunya

Board member

Generalitat de Catalunya

2022 - 2024

Scientific Committee.....

Quantum Techniques in Machine Learning 2025, Singapore.

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.

Peer-review and referee.....

Journals: Nature Communications, Nature Machine Intelligence, Physical Review A, Advanced Quantum Technologies, Quantum, New Journal of Physics, Quantum Information Processing.

Project agencies: QuantERA, Agencia Española de Investigación.

Access committee: CESGA quantum computing access.

PhD Thesis committees.....

Quantum-inspired Machine Learning for HEP Applications

Ema Puljak

Supervisor: Artur Garcia

Universitat Autònoma de Barcelona

Jan 23, 2026

Quantum Adventures From Analog to Digital: Gauge, Scars and Laughlin U. Politècnica de Catalunya

Barbara Andrade Dos Santos

Supervisors: Maciej Lewenstein, Tobias Groß

May 19, 2025

Memory Management in Software Quantum Computing Simulators

Gilberto Díaz

Supervisors: C. Jaime Barrios Hernández, L. Angelo Steffenel, J. F. Couturier

U. Industrial de Santander

Dec 9, 2024

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

Conference and seminars organization

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

Teaching

Lectures and courses

A gentle introduction to quantum computing <i>ACM Europe Summer School on HPC</i> The quest for the quantum computer	ACM Europe, Barcelona <i>July 7, 2023</i>
A gentle introduction to quantum computing <i>ACM Europe Summer School on HPC</i>	ACM Europe, Barcelona <i>July 7, 2023</i>
Quantum Algorithms I and II <i>Spring School on Superconducting Qubit Technology</i>	Centro de Ciencias de Benasque Pedro Pascual <i>Apr 11-21, 2023</i>
The Noisy Intermediate Scale Quantum Computation <i>Escenarios Científicos</i>	Universidad Complutense de Madrid <i>Mar 14, 2023</i>
The Noisy Intermediate Scale Quantum Computation <i>Master Modelling for Science and Engineering Research and Innovation</i>	Universitat Autònoma de Barcelona <i>Oct 4, 2022</i>
Variational Quantum Computing <i>IV Summer School on Quantum Computing</i>	Universidad Internacional Menéndez-Pelayo <i>Sep 5-9, 2022</i>
Near-term quantum computing <i>Clase introducción al curso en Quantum Computing software.</i>	Universidad Castilla La-Mancha <i>Jun 20, 2022</i>
NISQ computing <i>Theory lectures</i>	Institut de Ciències Fotòniques (ICFO) <i>Mar 15-24, 2022</i>
Variational Quantum Computing <i>III Summer School on Quantum and Q-Inspired Computing</i>	Universidad Internacional Menéndez-Pelayo <i>Sep 7, 2021</i>
Noisy Intermediate-Scale Quantum Algorithms <i>Summer School "Machine Learning in Quantum Physics and Chemistry"</i>	Warsaw, Poland <i>Aug 25, 2021</i>
Quantum Computing in the NISQ era <i>Talk in Quantum Technologies Winter School</i>	UCL <i>Dec 10, 2020</i>
Bojos per la Supercomputació <i>Introductory course in quantum computation for high-school students</i>	BSC <i>26 Apr – 04 May, 2019</i>

Teaching positions

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

Students

PhD

César Fernández Lamas <i>Co-supervised with Javier Argüello Luengo and Antonio Rubio Abadal</i>	Universitat de Barcelona Feb 2026 – Present
Todor Krasmirov	Universitat de Barcelona Oct 2025 – Present
Francesco Aldo Venturelli <i>Co-supervised with Miguel Ángel González Ballester</i>	Universitat Pompeu Fabra Nov 2024 – Present
Berta Casas Font <i>Co-supervised with Artur Garcia</i>	University of Barcelona Sep 2022 – Present

Master

Blanca Belmonte <i>Particle detection using entanglement</i> Co-supervised with Diego Blas. Master Quantum Science and Technology.	University of Barcelona Feb 2026 – Jul 2026
Mar Tejedor Ninou <i>Distributed Circuit Cutting for Hybrid Quantum-HPC Systems</i> Co-supervised with Rosa Badia. Master Quantum Science and Technology.	University of Barcelona Feb 2025 – Jul 2025
Juan Francisco Martín Bravo <i>Quantum benchmarking: entanglement measures in a quantum computer</i> Master Quantum Science and Technology.	University of Barcelona Feb 2023 – Jul 2023
Berta Casas Font <i>Quantum function fitting and classification beyond the single-qubit model</i> Master Quantum Science and Technology.	University of Barcelona Feb 2022 – Jul 2022

Internships

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

Alba Guasch <i>Fault Tolerant Quantum Computation</i> Physics Degree. Co-supervised with Sofyan Iblisdir.	Universitat de Barcelona Sep 2025 – Jan 2026
Natasha Trojan <i>Optimization of quantum circuit cutting for distributed computing</i> Computer Science Degree. Co-supervised with Rosa Badia.	Universitat Politècnica de Catalunya Sep 2025 – Jan 2026
Marc Farreras <i>Exact XY model simulation with a quantum computer</i> Physics Degree	University of Barcelona Feb 2023 – Jul 2023
Alex Alemany <i>The HHL algorithm</i> Computer Science Degree. Co-supervised with Jordi Delgado.	Universitat Politècnica de Catalunya Feb 2023 – Jul 2023

Júlia Barberà Rodríguez
Application of Grover's quantum algorithm for string matching
Physics Degree

University of Barcelona
Feb 2022 – Jul 2022

Elies M. Gil Fuster
Variational Quantum Classifier
Physics Degree. Co-supervised with J. I. Latorre.

University of Barcelona
Feb 2019 – Jul 2019

Outreach

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

Articles

Computación Cuántica: Una nueva (r)evolución en computación **BIT**
BIT 236, Especial Tecnologías Cuánticas Jun 2025

Computación cuántica: 25 años después **Revista Española de Física**
Revista Española de Física 39 (1), 12-16 Jun 2025

Supercomputación y computación cuántica: el camino hacia la integración **Revista Española de Física**
Revista Española de Física 38 (2), 37-41 Mar 2024

L'ordinador quàntic: un camí de ciència, tecnologia i sobirania **Revista IDEES**
Revista IDEES núm. 61 "Quantum: una revolució que canviarà el món?". Feb 2024
Translated to Spanish, English and Catalan.

Computación Cuántica en la Nube **Revista Española de Física**
Revista Española de Física 34 (1), 25-29. Mar 2020

How I became a quantum computation scientist
Medium article for @qiskit Jul 2018

Contributing Writer **Quantum World Association**
Medium articles, @quantum_wa. 2018 – 2019

Commissary

City and Science Biennial **Ajuntament de Barcelona**
With Toni Pou and Teresa Badia. 2025

Panels and round tables

Talent Arena MWC **Barcelona**
Conversation with Antonio Acín Mar 5, 2025

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

Premios Nacionales de Investigación **Barcelona**
Presenter and moderator of the act. May 5, 2022
Chaired by HRH King and Queen of Spain, Spanish Minister of Science and Universities and Barcelona Mayor.

Mujeres y Digitalización: Por una España Igualitaria **MINECO**
Round table with Marta Villegas, Lucía Flecha and Susana Fernández. Mar 8, 2022
Moderated by the Secretary of State of Digitalization and AI Carme Artigas.

Dia Internacional Dona i Nena a la ciència **Ajuntament de Barcelona**
Event with Barcelona city Mayor and government. Feb 11, 2022

Women in Physics path **Universitat de Barcelona**
Organized by the Equality commission from the Physics Faculty Mar 3 2021

Keynote speech

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

Mentorship programs.....

Quantum Open Source Foundation mentorship program

Mentor

QOSF

Sep 2020 – Jan 2021

Girls E-Mentorship program

Mentor

GEM

Sep 2020 – June 2021