

Alba Cervera-Lierta | Full CV

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Education

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| 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

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| 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 | |
| EuroQCS-Spain project <i>Quantum computing technology responsible (budget: 12,5 M €)</i> | Barcelona Supercomputing Center 2022 – Present |
| 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

Budget: 745.200 €(WP), Role: EuroQCS-Spain consortia coordinator.

EuroHPC - Joint Undertaking

2025 – 2029

National

Logic Artificial Intelligence for Photonics (LOGITONICS)

Budget: 75k €, Role: principal investigator.

Agencia Estatal de Investigación (AEI)

2024 – 2028

Ramón y Cajal fellowship

Budget: 50k €, Tenure track position.

Agencia Estatal de Investigación (AEI)

2024 – 2029

Quantum Spain project

Budget: 22M €, Role: principal investigator

<https://quantumspain-project.es>

Secretary of State of Digitalization and AI (SEDIA)

2021 – 2025

Industry

Quantum Experience for Academic Research Program

Funding: Exclusive access to pulse-level control of IBM quantum devices, Role: co-PI.

IBM

Project: High-dimensional quantum experiments superconducting circuits.

2021 – 2022

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](#).

20. Distributed Quantum Circuit Cutting for Hybrid Quantum-Classical HPC

M. Tejedor, B. Casas, F. Conejero, [A. Cervera-Lierta](#), R. Badia
arXiv:2505.01184v1 [cs.DC].

Preprint

2025

19. Universality of entanglement in gluon dynamics

C. Núñez, [A. Cervera-Lierta](#), J. I. Latorre
arXiv:2504.15353v1 [hep-th].

Preprint

2025

18. Quantum Circuits for High-Dimensional Absolutely Maximally Entangled States

B. Casas, G. Rajchel-Mieldzioć, S. Ahmad Rather, M. Płodzień, W. Bruzda,
[A. Cervera-Lierta](#), K. Życzkowski, arXiv:2504.05394 [quant-ph].

Preprint

2025

17. Multidimensional Fourier series with quantum circuits

B. Casas, [A. Cervera-Lierta](#)

Physical Review A 107, 062612 (2023).

Phys. Rev. A

2023

16. Design of quantum optical experiments with Logic Artificial Intelligence

[A. Cervera-Lierta](#), M. Krenn, A. Aspuru-Guzik
Quantum **6**, 836 (2022).

Quantum

2022

15. On scientific understanding with artificial intelligence

M. Krenn, R. Pollice, S. Y. Guo, et. al.
Nature Review Physics (2022).

Nat. Rev. Phys.

2022

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|---|---------------------------------|
| 14. Toward Reliability in the NISQ Era: Robust Interval Guarantee for Quantum Measurements on Approximate States M. Weber, A. Anand, <u>A. Cervera-Lierta</u> , J. S. Kottmann, T. H. Kyaw, et. al. Physical Review Research 4 , 033217 (2022). | Phys. Rev. Research 2022 |
| 13. Programming Physical Quantum Systems with Pulse-Level Control K. N. Smith, G. S. Ravi, T. Alexander, et. al. Frontiers in Physics, 672 (2022). | Front. Phys. 2022 |
| 12. Learning Interpretable Representations of Entanglement in Quantum Optics Experiments using Deep Generative Models D. Flam-Shepherd, T. Wu, X. Gu, <u>A. Cervera-Lierta</u> , M. Krenn, A. Aspuru-Guzik Nature Machine Intelligence 4 (6), 544-554 (2022). | Nat. Mach. Intell. 2021 |
| 11. Experimental high-dimensional Greenberger–Horne–Zeilinger entanglement with superconducting transmon qutrits <u>A. Cervera-Lierta</u> , M. Krenn, A. Aspuru-Guzik, A. Galda Physical Review Applied 17 , 024062 (2022). | Phys. Rev. Appl. 2022 |
| 10. Noisy intermediate-scale quantum algorithms K. Bharti, <u>A. Cervera-Lierta</u> , T. H. Kyaw, T. Haug, et. al. Review of Modern Physics 94 , 015004 (2022). | Rev. Mod. Phys. 2022 |
| 9. The Meta-Variational Quantum Eigensolver (Meta-VQE): Learning energy profiles of parameterized Hamiltonians for quantum simulation <u>A. Cervera-Lierta</u> , J. S. Kottmann and A. Aspuru-Guzik PRX Quantum 2 , 020329 (2021). | PRX Quantum 2021 |
| 8. Tequila: A platform for rapid development of quantum algorithms J. S. Kottmann, S. Alperin-Lea, T. Tamayo-Mendoza, <u>A. Cervera-Lierta</u> et. al. Quantum Science and Technology 6 024009 (2021). | Quantum Sci. Technol. 2021 |
| 7. Data Re-uploading for a Universal Quantum Classifier A. Pérez-Salinas, <u>A. Cervera-Lierta</u> , E. Gil-Fuster, J. I. Latorre Quantum 4 , 226 (2020). | Quantum 2020 |
| 6. Maximal Entanglement: Applications in Quantum Information and Particle Physics <u>A. Cervera-Lierta</u> arXiv:1906.12099 [quant-ph]. | PhD Thesis 2019 |
| 5. Quantum Circuits for Maximally Entangled States <u>A. Cervera-Lierta</u> , J. I. Latorre, D. Goyeneche Physical Review A 100 , 022342 (2019). | Phys. Rev. A 2019 |
| 4. Exact Ising Simulation on a Quantum Computer <u>A. Cervera-Lierta</u> Quantum 2 , 114 (2018). | Quantum 2018 |
| 3. Multipartite Entanglement in Spin Chains and the Hyperdeterminant <u>A. Cervera-Lierta</u> , A. Gasull, J. I. Latorre and G. Sierra. Journal of Physics A: Mathematical and Theoretical 51 , 505301 (2018). | J. Phys. A Math. Theor. 2018 |
| 2. Maximal Entanglement in High Energy Physics <u>A. Cervera-Lierta</u> , J. I. Latorre, J. Rojo and L. Rottoli SciPost Physics 3 , 036 (2017). | SciPost Phys. 2017 |
| 1. Operational Approach to Bell Inequalities: Application to qutrits D. Alsina, <u>A. Cervera</u> , D. Goyeneche, J. I. Latorre and K. Zyczkowski Physical Review A 94 , 032102 (2016). | Phys. Rev. A 2016 |
| Reports and white papers | |
| When matter and information merge into “Quantum” R. Aguado, A. Cervera-Lierta, A. Correia, et. al., Communications Physics 6 (1) 266 (2023). | Commun. Phys. 2023 |
| Workflows Community Summit 2022: A Roadmap Revolution R. Ferreira da Silva, R. M. Badia, V. Bala, et. al. ORNL/TM-2023/2885, arXiv:2304.00019 [cs.DC]. | Technical Report 2023 |

Books, chapters and notes

Machine learning in quantum sciences

A. Dawid, J. Arnold, B. Requena, et. al.

Cambridge University Press 2025, arXiv:2204.04198 [quant-ph].

Cambridge University Press

2025

Simulation of the 1d XY model on a quantum computer

M. Farreras, A. Cervera-Lierta

SciPost Physics Lecture Notes **95** (2025).

SciPost Phys. Lect. Notes

2025

Software development

Libraries:

Distributed quantum circuit cutting library "Qdislib"

Project collaborator, <https://qdislib.readthedocs.io/>

Python

2025

Quantum computing open-source library "Tequila"

Project collaborator, <https://github.com/tequilahub/>

Python

2021

Codes and demos:

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/asparu-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 Inaugural

"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

10th 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

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

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| Quantum computers: the new supercomputer partition <i>HiPEAC 2025, Classical HPC & QC: the way to foster the integration workshop</i> | Barcelona, Spain. Jan 20, 2025 |
| Quantum computers: the new supercomputer partition <i>SC24</i> | Atlanta, USA Nov 20, 2024 |
| Design of quantum optical experiments with logic artificial intelligence <i>SCOP24</i> | ICFO, Barcelona Oct 3, 2024 |
| Building the Spanish Quantum Computer <i>Quantum Technologies in Europe, Madrid, Spain</i> | Quantera Nov 23, 2023 |
| Quantum-HPC integration: challenges and opportunities <i>EQTC 2023</i> | Hannover, Germany Oct 19, 2023 |
| Variational Quantum Algorithms <i>QTYR 2023</i> | CSIC, Madrid Jul 04, 2023 |
| Quantum Spain in the NISQ era <i>QBN Meeting on Quantum Computing and Applications</i> | BSC-CNS Jun 15, 2023 |
| High-dimensional quantum computation: opportunities and challenges <i>Symposium on Open-Source Tools for Quantum Computing & Simulation</i> | ICFO Mar 31, 2023 |
| High-dimensional quantum computation <i>CERN</i> | QT4HPC Nov 2, 2022 |
| Quantum algorithms in near term devices <i>IQTC, University of Barcelona (Spain).</i> | New Trends in Computational Chemistry Sep 9, 2022 |
| Quantum Spain <i>Barcelona (Spain).</i> | Quantum 2022 Jun 22, 2022 |
| Quantum Spain: un impulso para el ecosistema de computación cuántica <i>NASERTIC, Pamplona (Spain).</i> | Jornada cuántica May 4, 2022 |
| Quantum Spain: un impulso para el ecosistema de computación cuántica <i>SCAYLE, León (Spain).</i> | Jornada Eco. Cuántico Mar 1, 2022 |
| Near term quantum computation: opportunities and challenges <i>Bilbao (Spain).</i> | Quantum 2021 Nov 24, 2021 |
| Noisy Intermediate-Scale Quantum era <i>Virtual (*).</i> | JURES 2021 Sep 17, 2021 |
| Noisy Intermediate-Scale Quantum algorithms <i>Perspectives on Quantum Sensing and Computation for Particle Physics. Virtual (*).</i> | CERN Jul 15, 2021 |
| The Meta-Variational Quantum Eigensolver <i>Virtual (*).</i> | Machine Learning for Quantum X Jul 6, 2021 |
| The Meta-Variational Quantum Eigensolver <i>Virtual (*).</i> | QWorld Quantum Science Days Jun 1, 2021 |
| Chronicles of Entangland, the foundation of the SC town <i>Virtual (*).</i> | Qiskit Hackathon Europe May 26, 2021 |
| Experimental high-dimensional GHZ entanglement with superconducting transmon qutrits <i>Chicago. Virtual (*).</i> | Pulse-level Quantum Control Workshop May 18, 2021 |
| Maximal Entanglement in High Energy Physics <i>Topical Group on Hadronic Physics. Virtual (*).</i> | APS April Meeting Apr 15, 2021 |
| Noisy Intermediate-Scale Quantum algorithms <i>Virtual (*).</i> | Universidad Iberoamericana Apr 13, 2021 |
| Please, feed the quantum troll! <i>Virtual (*).</i> | Q-Hack 2021 Feb 19, 2021 |

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| Testing and designing quantum algorithms for the NISQ era <i>Quantum Computing and Simulation on Near-Term Devices. Virtual (*).</i> | INT-20-3 Nov 21, 2020 |
| Maximal Entanglement in High Energy Physics, Quantum Entanglement at Collider Energies <i>Stony Brook (United States).</i> | CFNS Stony Brook Sep 11, 2018 |
| Exact simulation of a Quantum Phase Transition on a quantum computer <i>Barcelona (Spain).</i> | Quantum Phase Transitions Apr 05, 2018 |
| Emergence of Gauge Symmetry from a Maximal Entanglement Principle <i>Madrid (Spain).</i> | Universidad Complutense de Madrid Sep 21, 2016 |
| Contributed..... | |
| The Meta-Variational Quantum Eigensolver <i>Virtual (*).</i> | APS March Meeting 2021 Mar 18, 2021 |
| Data re-uploading for a universal quantum classifier <i>Virtual (*).</i> | Q-Turn 2020 Nov 24, 2020 |
| Data re-uploading for a universal quantum classifier <i>Quantum Techniques Machine Learning. Virtual (*).</i> | QTML 2020 Nov 12, 2020 |
| Maximal Entanglement in Quantum Computation <i>Barcelona (Spain).</i> | BSC Severo Ochoa Doctoral Symposium May 07, 2019 |
| 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 May 14, 2025 |
| Computació quàntica: reptes i oportunitats <i>FIB</i> | UPC Mar 11, 2025 |
| The Noisy Intermediate-Scale Quantum Computation <i>IQCC</i> | Universitat de Girona Jan 21, 2025 |
| Computación cuántica: pasado, presente y futuro de una revolución tecnológica <i>Madrid, Spain</i> | Telefónica Feb 21, 2024 |
| Quantum-HPC integration: challenges and opportunities <i>Toronto, Canada</i> | LG Toronto Oct 26, 2023 |
| Quantum Spain: creating a public quantum-HPC infrastructure <i>European Comission (Virtual).</i> | Quantum Cafe Sep 21, 2023 |
| A roadmap to quantum computing integration into HPC infrastructures | RISC2 Seminar Series Mar 15, 2023 |
| Noisy Intermediate Scale Quantum Computation <i>Dept. Condensed Matter Physics.</i> | Universidad de Zaragoza Jun 3, 2022 |
| Noisy Intermediate Scale Quantum Computation <i>Virtual.</i> | Universidad Nacional de Colombia Apr 21, 2022 |
| Design of quantum optical experiments with logic artificial intelligence <i>Quantum Optics group seminar.</i> | MPQ Oct 29, 2021 |
| High-dimensional quantum computing experiments <i>Prof. Manas Mukherjee group meeting (Singapore, Virtual *)</i> | CQT Aug 03, 2021 |
| Maximal Entanglement in a Quantum Computer <i>Fermilab theory seminars. Virtual (*)</i> | Fermilab Jun 15, 2021 |
| The Meta-Variational Quantum Eigensolver <i>Oxford Quantum Information Society. Virtual (*)</i> | Oxford May 20, 2021 |

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| 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

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

Quantum computing + Communications: meet at the halfway.

Pannel with Hugues de Riedmatten.

PuzzleX

Oct 7, 2022

Moderated by Carmen G. Almudéver.

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

Quantum Software Ecosystem

Pannel discussion with industry and academic members

DATE 2022

Mar 21 2022

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

Barbara Andrade Dos Santos

May 19, 2025

Supervisors: Maciej Lewenstein, Tobias Graß

Memory Management in Software Quantum Computing Simulators

Gilberto Díaz

U. Industrial de Santander

Dec 9, 2024

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

Quantum many-body ground states via digital quantum simulation

Bruno Rodrigues Pacheco e Murta

Universidade do Minho

Feb 29, 2024

Supervisors: Joaquín Fernández-Rossier, Nuno Miguel Machado Reis Peres

Reservoir Computing in Quantum Systems

Rodrigo Martínez Peña

Universitat de les Illes Balears

Sep 7, 2023

Supervisor: Roberta Zambrini, Miguel Cornelles Soriano

Fault tolerant quantum algorithms

Pablo Moreno-Casares

Universidad Complutense de Madrid

Jan 17, 2023

Supervisor: Miguel Ángel Martín-Delgado

Quantum information in lattices

Bruna Gabrielly De Moraes Araújo

Universitat Autònoma de Barcelona

Jul 22, 2022

Supervisors: Antonio Acín dal Maschio, Daniel Cavalcanti Santos and Stephan Jean Louis Roche

Conference and seminars organization

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

Teaching

Lectures and courses.....

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| A gentle introduction to quantum computing <i>ACM Europe Summer School on HPC</i> | ACM Europe, Barcelona <i>July 7, 2023</i> |
| The quest for the quantum computer | |
| 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> |
| The Quantum Revolution <i>Seminar at Master in Finance</i> | ESADE Business School <i>Jun 07, 2018</i> |

Teaching positions.....

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

Students

PhD

Todor Krasmirov

Universitat de Barcelona
Oct 2025 – Present

Francesco Aldo Venturelli

Co-supervised with Miguel Ángel González Ballester

Universitat Pompeu Fabra
Nov 2024 – Present

Berta Casas Font

Co-supervised with Artur Garcia

University of Barcelona
Sep 2022 – Present

Master

Mar Tejedor Ninou

Distributed Circuit Cutting for Hybrid Quantum-HPC Systems

Co-supervised with Rosa Badia. Master Quantum Science and Technology.

University of Barcelona
Feb 2025 – Jul 2025

Juan Francisco Martín Bravo

Quantum benchmarking: entanglement measures in a quantum computer

Master Quantum Science and Technology.

University of Barcelona
Feb 2023 – Jul 2023

Berta Casas Font

Quantum function fitting and classification beyond the single-qubit model

Master Quantum Science and Technology.

University of Barcelona
Feb 2022 – Jul 2022

Internships

Francesc Sabater Garcia

Adding Qibo as a Supported Framework for Mitiq

Master Quantum Science and Technology.

University of Barcelona
Sep 2023 – Feb 2024

Undergraduate (degree)

Marc Farreras

Exact XY model simulation with a quantum computer

Physics Degree

University of Barcelona
Feb 2023 – Jul 2023

Alex Alemany

The HHL algorithm

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 236, Especial Tecnologías Cuánticas

BIT

Jun 2025

Computación cuántica: 25 años después

Revista Española de Física 39 (1), 12-16

Revista Española de Física

Jun 2025

**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 canviará el món?".

Translated to Spanish, English and Catalan.

Revista IDEES

Feb 2024

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| Computación Cuántica en la Nube <i>Revista Española de Física 34 (1), 25-29.</i> | Revista Española de Física <i>Mar 2020</i> |
| How I became a quantum computation scientist <i>Medium article for @qiskit</i> | <i>Jul 2018</i> |
| Contributing Writer <i>Medium articles, @quantum_wa.</i> | Quantum World Association <i>2018 – 2019</i> |
| Commissary | |
| City and Science Biennal <i>With Toni Pou and Teresa Badia.</i> | Ajuntament de Barcelona <i>2025</i> |
| Panels and round tables | |
| Talent Arena MWC <i>Conversation with Antonio Acín</i> | Barcelona <i>Mar 5, 2025</i> |
| Jornades REACT <i>Round table with Teresa Riesgo Alcaide, Laia Bonet, Xavier Azemar Mallard Mateo Valero Cortes. Mar 29, 2023</i> Moderated by Elena Arrieta Palacio. | Barcelona |
| Premios Nacionales de Investigación <i>Presenter and moderator of the act.</i> Chaired by HRH King and Queen of Spain, Spanish Minister of Science and Universities and Barcelona Mayor. | Barcelona <i>May 5, 2022</i> |
| Mujeres y Digitalización: Por una España Igualitaria <i>Round table with Marta Villegas, Lucía Flecha and Susana Fernández.</i> Moderated by the Secretary of State of Digitalization and AI Carme Artigas. | MINECO <i>Mar 8, 2022</i> |
| Dia Internacional Dona i Nena a la ciència <i>Event with Barcelona city Mayor and government.</i> | Ajuntament de Barcelona <i>Feb 11, 2022</i> |
| Women in Physics path <i>Organized by the Equality commission from the Physics Faculty</i> | Universitat de Barcelona <i>Mar 3 2021</i> |
| Keynote speech | |
| Bojos de la Ciència <i>Speech about Bojos per la Supercomputació program</i> | Fundació Catalunya-La Pedrera <i>Dec 10 2018</i> |
| Bojos de la Ciència <i>Speech at Master grants act</i> | Fundació Catalunya-La Pedrera <i>Oct 16 2018</i> |
| Talks and courses | |
| Computació quàntica: passat, present i futur d'una (r)evolució tecnològica <i>Mobile World Congress</i> | Beat Barcelona <i>Mar 6, 2025</i> |
| Quantum computers: the new supercomputer partition <i>Mobile World Congress</i> | BSC Booth. <i>Mar 6, 2025</i> |
| Computación cuántica: pasado, presente y futuro de una (r)evolución tecnológica <i>Casa del Cordón</i> | Burgos, Spain. <i>Feb 27, 2025</i> |
| Computació quàntica: passat, present i futur d'una (r)evolució tecnològica <i>Cicle Últimes fronteres: la ciència del segle XXI</i> | Universitat de Girona <i>May 4, 2023</i> |
| Computación cuántica: presente y futuro de una revolución tecn. <i>Jornada tecnología.</i> | Uni. Las Palmas de Gran Canaria <i>Apr 18, 2023</i> |
| Computació Quàntica i els reptes de Talent TIC en els propers anys <i>Col·legi d'Informàtica de Catalunya</i> | Lul · liana <i>Nov 24, 2022</i> |
| Tecnologies quàntiques: present i futur d'una (r)evolució tecnològica <i>Casal de Joves Sant Just Desvern</i> | Jornades Feministes <i>Nov 20, 2022</i> |
| Present i futur de les technologies quàntiques <i>Two-day introductory course for senior citizens.</i> | A-12 Estudis i Recerca Universitaria <i>Oct 20-26, 2022</i> |

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| Computació quàntica: present i futur d'una revolució tecnològica | Open Day TIC |
| Universitat Politècnica de Catalunya. | May 12, 2022 |
| Tecnologías Cuánticas: presente y futuro | Pint of Science |
| Barcelona. | May 11, 2022 |
| Quantum Spain: un impulso para el ecosistema de computación cuántica | CTA |
| Seminar for the Corporación Tecnológica de Andalucía. Virtual. | Apr 26, 2022 |
| Supercomputación y Quantum Spain | PTE Disruptive |
| Seminar for the Plataforma Tecnológica Española y de Tecnologías Disruptivas. Virtual. | Mar 22, 2022 |
| Tecnologías cuánticas: presente y futuro | Col · legi de Biòlegs de Catalunya |
| Virtual. | Mar 16, 2022 |
| Computación Cuántica | Live Talks Cosmocaixa |
| Cosmocaixa (Barcelona) | Feb 16, 2022 |
| Quantum Spain | Meet-up |
| Quantum Barcelona and Madrid meet-up. | Dec 13, 2021/Feb 9, 2022 |
| Quantum Calling | K-W Quantum Enthusiasts Meetup |
| Waterloo Quantum Meet-up | Jun 18, 2020 |
| Quantica | CCCB |
| Quantum computing talk and participation in the exhibition (video) | Apr 10-Sep 26, 2019 |
| De las computadoras a los ordenadores | Margarita Salas Honoris Causa PhD event |
| Badajoz, Spain | Feb 26, 2019 |
| Technology to manipulate Nature | El País con tu Futuro |
| Madrid, Spain | Dec 18, 2018 |
| Quantum Computation: a new paradigm | TEDx talk |
| Sant Feliu de Llobregat, Barcelona, Spain | Sep 15, 2018 |
| Quantum Computation | Cosmocaixa (Science Museum) |
| Researcher's Night 2018 | Sep 28, 2018 |
| Mentorship programs | |
| Quantum Open Source Foundation mentorship program | QOSF |
| Mentor | Sep 2020 – Jan 2021 |
| Girls E-Mentorship program | GEM |
| Mentor | Sep 2020 – June 2021 |