

Alba Cervera Lierta | CV

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Education

Doctor of Philosophy (PhD) <i>Supervisor: Dr. José Ignacio Latorre</i>	Universitat de Barcelona 2015 – 2019
Master in Astrophysics, Particle Physics and Cosmology <i>Specialized in Particle Physics and Gravitation.</i>	Universitat de Barcelona 2014 – 2015
Bachelor in Physics <i>Specialized in Fundamental Physics</i>	Universitat de Barcelona 2009 – 2014

Experience and Collaborations

Research

Postdoctoral Fellow <i>Alán Aspuru-Guzik group</i>	University of Toronto 2019 –
Technical Researcher <i>Quantic group (CASE department)</i>	Barcelona Supercomputing Center (BSC) 2017 – 2019
Visiting Scholar <i>Dr. César Gómez's group.</i>	Instituto de Física Teórica (CSIC) Feb 2017
Visiting Scholar <i>Four months stay at Dr. Juan Rojo's group.</i>	University of Oxford 2016
Specialized Technician <i>Project: "Entanglement, tensor networks and cold gases"</i>	Universitat de Barcelona 2014

Organization

Quantum Research Seminars Toronto. <i>Co-organizer. Event creator, organizer and chair. Youtube: Quantum Research Seminars Toronto.</i>	Virtual 2020 –
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Teaching

Teacher Assistant	Universitat Autònoma de Barcelona 2017 – 2019
Teacher Assistant	Universitat de Barcelona 2016 – 2017

Awards and Honors

IBM Pulse Access Award	IBM Feb 2021
PhD Excellent Cum Laude	Universitat de Barcelona Jun 2019
Teach Me QISKit Award	IBM Jun 2018

Publications

Experimental high-dimensional Greenberger–Horne–Zeilinger entanglement with superconducting transmon qutrits A. Cervera-Lierta, M. Krenn, A. Aspuru-Guzik, A. Galda, arXiv:2104.05627 [quant-ph].	2021
Noisy intermediate-scale quantum (NISQ) algorithms K. Bharti, A. Cervera-Lierta, T. H. Kyaw, T. Haug, et. al. arXiv:2101.08448 [quant-ph]	Review 2021

The Meta-Variational Quantum Eigensolver (Meta-VQE): Learning energy profiles of parameterized Hamiltonians for quantum simulation A. Cervera-Lierta, J. S. Kottmann and A. Aspuru-Guzik, PRX Quantum 2 , 020329 (2021).	2021
Tequila: A platform for rapid development of quantum algorithms J. S. Kottmann, S. Alperin-Lea, T. Tamayo-Mendoza, A. Cervera-Lierta et. al. Quantum Sci. Technol. 6 024009	2021
Data Re-uploading for a Universal Quantum Classifier A. Pérez-Salinas, A. Cervera-Lierta, E. Gil-Fuster, J. I. Latorre Quantum 4 , 226 (2020).	2020
Quantum Circuits for Maximally Entangled States A. Cervera-Lierta, J. I. Latorre, D. Goyeneche Physical Review A 100 , 022342 (2019).	2019
Exact Ising Simulation on a Quantum Computer A. Cervera-Lierta Quantum 2 , 114 (2018).	2018
Multipartite Entanglement in Spin Chains and the Hyperdeterminant A. Cervera-Lierta, A. Gasull, J. I. Latorre and G. Sierra. Journal of Phys. A: Math. Theor. 51 , 505301 (2018).	2018
Maximal Entanglement in High Energy Physics A. Cervera-Lierta, J. I. Latorre, J. Rojo and L. Rottoli SciPost Phys. 3 , 036 (2017).	2017
Operational Approach to Bell Inequalities: Application to qutrits D. Alsina, A. Cervera, D. Goyeneche, J. I. Latorre and K. Zyczkowski Phys. Rev. A 94 , 032102 (2016).	2016

Selected Talks

The full list can be found at my webpage <http://albacl.github.io>.

Noisy Intermediate-Scale Quantum algorithms <i>Perspectives on Quantum Sensing and Computation for Particle Physics</i>	CERN Jul 15, 2021
The Chronicles of Entangland, the foundation of the SC town <i>Qiskit Europe Hackathon</i>	IBM May 26, 2021
The Meta-Variational Quantum Eigensolver	Oxford Quantum Information Society May 20, 2021
Experimental high-dimensional GHZ entanglement with superconducting transmon qutrits , Pulse-level Quantum Control Workshop	Chicago Quantum Exchange May 18, 2021
Maximal entanglement in High-Energy physics <i>9th Biennial Workshop of the APS Topical Group on Hadronic Physics</i>	APS Apr 15, 2021
The Meta-Variational Quantum Eigensolver <i>March Meeting</i>	APS Mar 18, 2021
Noisy Intermediate-Scale Quantum algorithms <i>Belgian Quantum Physics Initiative colloquium</i>	Académie Royale de Belgique Mar 4, 2021
Please, feed the quantum troll! <i>Q-Hack</i>	Xanadu Quantum Computing Feb 19, 2021
Data re-uploading for a universal quantum classifier <i>Quantum Techniques in Machine Learning</i>	Zapata Computing Nov 12, 2020
Maximal Entanglement in High Energy Physics <i>Workshop on Quantum Entanglement at Collider Energies.</i>	CFSN Stony Brook, NY Sep 11, 2018

Courses and Seminars

Quantum Computing in the NISQ era <i>Talk in Quantum Technologies Winter School</i>	UCL Dec 10, 2020
Bojos per la Supercomputació <i>Introductory course in quantum computation for high-school students</i>	BSC 26 Apr – 04 May, 2019
The Quantum Revolution <i>Seminar at Master in Finance</i>	ESADE Business School Jun 07, 2018

Outreach

Mentorship programs.....

Quantum Open Source Foundation mentorship program <i>Mentor</i>	QOSF Sep 2020 – Jan 2021
Girls E-Mentorship program <i>Mentor</i>	GEM Sep 2020 – June 2021

Articles.....

Computación Cuántica en la Nube <i>Revista Española de Física</i>	RSEF Mar 2020
How I became a quantum computation scientist <i>Medium article for @qiskit</i>	Jul 2018
Contributing Writer <i>Medium articles, @quantum_wa.</i>	Quantum World Association 2018 – 2019

Talks.....

A selection of some popular science talks and contributions.

Quantum Calling <i>Waterloo Quantum Meet-up</i>	K-W Quantum Enthusiasts Meetup Jun 18, 2020
Quantica <i>Quantum computing talk and participation in the exhibition (video)</i>	CCCB Apr 10-Sep 26, 2019
De las computadoras a los ordenadores <i>Badajoz, Spain</i>	Margarita Salas Honoris Causa PhD event Feb 26, 2019
Technology to manipulate Nature <i>Madrid, Spain</i>	El País con tu Futuro Dec 18, 2018
Quantum Computation: a new paradigm <i>Sant Feliu de Llobregat, Barcelona, Spain</i>	TEDx talk Sep 15, 2018
Quantum Computation <i>Researcher's Night 2018</i>	Cosmocaixa (Science Museum) Sep 28, 2018

Other skills

Programming Languages.....

Classical: Fortran, Python, Mathematica.

Quantum: QisKit (IBM), Qiskit Pulse (IBM), pyquil (Rigetti Computing), Cirq (Google), Tequila (MatterLab)

Languages.....

English (fluent), Spanish (mothertongue), Catalan (mothertongue).

Social Media.....

Twitter: Creator and manager of research group's account, @QUANTIC_BSC (until Jul 2019) and @QRSToronto.

Media: Several interviews in Spanish national newspapers and participated in radio programs (see my personal webpage for more information and links).