Alba Cervera Lierta | CV

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Education

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

Experience and Collaborations

Research

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

Organization

Quantum Research Seminars Toronto.	**Virtual**
Co-organizer. Event creator, organizer and chair. Youtube: Quantum Research Seminars Toronto.	*2020 –*

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 — *2021*
A. Cervera-Lierta, M. Krenn, A. Aspuru-Guzik, A. Galda, arXiv:2104.05627 [quant-ph].

Noisy intermediate-scale quantum (NISQ) algorithms — **Review**
K. Bharti, A. Cervera-Lierta, T. H. Kyaw, T. Haug, et. al. — *2021*
arXiv:2101.08448 [quant-ph]

The Meta-Variational Quantum Eigensolver (Meta-VQE):
Learning energy profiles of parameterized Hamiltonians for quantum simulation *2021*
A. Cervera-Lierta, J. S. Kottmann and A. Aspuru-Guzik, PRX Quantum **2**, 020329 (2021).

Tequila: A platform for rapid development of quantum algorithms
J. S. Kottmann, S. Alperin-Lea, T. Tamayo-Mendoza, A. Cervera-Lierta et. al. *2021*
Quantum Sci. Technol. **6** 024009

Data Re-uploading for a Universal Quantum Classifier
A. Pérez-Salinas, A. Cervera-Lierta, E. Gil-Fuster, J. I. Latorre *2020*
Quantum **4**, 226 (2020).

Quantum Circuits for Maximally Entangled States
A. Cervera-Lierta, J. I. Latorre, D. Goyeneche *2019*
Physical Review A **100**, 022342 (2019).

Exact Ising Simulation on a Quantum Computer
A. Cervera-Lierta *2018*
Quantum **2**, 114 (2018).

Multipartite Entanglement in Spin Chains and the Hyperdeterminant
A. Cervera-Lierta, A. Gasull, J. I. Latorre and G. Sierra. *2018*
Journal of Phys. A: Math. Theor. **51**, 505301 (2018).

Maximal Entanglement in High Energy Physics
A. Cervera-Lierta, J. I. Latorre, J. Rojo and L. Rottoli *2017*
SciPost Phys. **3**, 036 (2017).

Operational Approach to Bell Inequalities: Application to qutrits
D. Alsina, A. Cervera, D. Goyeneche, J. I. Latorre and K. Zyczkowski *2016*
Phys. Rev. A **94**, 032102 (2016).

Selected Talks

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

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

Courses and Seminars

Quantum Computing in the NISQ era	**UCL**
Talk in Quantum Technologies Winter School	*Dec 10, 2020*

Bojos per la Supercomputació **BSC**
Introductory course in quantum computation for high-school students *26 Apr – 04 May, 2019*

The Quantum Revolution **ESADE Business School**
Seminar at Master in Finance *Jun 07, 2018*

Outreach

Mentorship programs

Quantum Open Source Foundation mentorship program **QOSF**
Mentor *Sep 2020 – Jan 2021*

Girls E-Mentorship program **GEM**
Mentor *Sep 2020 – June 2021*

Articles

Computación Cuántica en la Nube **RSEF**
Revista Española de Física *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*

Talks

A selection of some popular science talks and contributions.

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*

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 (present).

Webpage: Research group webpage manager, quantic.bsc.es (until Nov 2018).

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